```
DBSLDR                                  SD SYSTEMS Z80 ASSEMBLER PAGE 0001
 ADDR  CODE      STMT SOURCE STATEMENT

                 0001          NAME    DBSLDR
                 0003 ;*****************************************************
                 0004 ;                                                    *
                 0005 ;        PROGRAM ID:     DDBIOS LOADER               *
                 0006 ;                                                    *
                 0007 ;        VERSION:        2.2         RELEASE 2       *
                 0008 ;                                                    *
                 0009 ;*****************************************************
                 0010 ;                                                    *
                 0011 ;        PROPERTY OF:    JADE COMPUTER PRODUCTS      *
                 0012 ;                        4901 W. ROSECRANS BLVD.     *
                 0013 ;                        HAWTHORNE, CALIFORNIA       *
                 0014 ;                        90250,   U.S.A.             *
                 0015 ;                                                    *
                 0016 ;*****************************************************
                 0017 ; THE BIOS LOADER IS READ INTO THE DCM SECTOR BUFFER *
                 0018 ; AFTER DCM HAS INITIALIZED. THE BIOS LOADER PROGRAM *
                 0019 ; IS THEN  EXECUTED  WHICH READS THE  DDBIOS  MODULE *
                 0020 ; INTO BANK 1.  THE COMMAND BLOCK (IN DCM) IS SET TO *
                 0021 ; INDICATE  DDBIOS  MODULE SIZE AND THE  SYSTEM LOAD *
                 0022 ; ADDRESS.  THE  BIOS LOADER PROGRAM IS GENERATED BY *
                 0023 ; MOVCPM.COM AS THE COLD START LOADER (900-97F HEX).  *
                 0024 ; THIS MODULE IS PROVIDED FOR REFERENCE PURPOSES.     *
                 0025 ;*****************************************************
                 0026 ; THE  DDBIOS LOADER IS COMPATABLE WITH  REV B AND C *
                 0027 ; DOUBLE D CONTROLLER BOARDS.  IT IS COMPATABLE WITH *
                 0028 ; FD1791-01 / FD1793-01.  IT WILL ALSO FUNCTION WITH *
                 0029 ; THE CURRENT FD179X-02 SERIES.                      *
                 0030 ;*****************************************************
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 ADDR  CODE      STMT SOURCE STATEMENT

                 0032 ;*******************************************************
                 0033 ; CONTROLLER PORT ASSIGNMENTS                           *
                 0034 ;*******************************************************
                 0035
 >0000           0036 BL$STS  EQU     000H    ;BOARD STATUS
 >0000           0037 BL$CTL  EQU     000H    ;BOARD CONTROLS
 >0004           0038 WD$CMD  EQU     004H    ;179X-02 COMMAND REGISTER
 >0004           0039 WD$STS  EQU     004H    ;179X-02 STATUS REGISTER
 >0006           0040 WD$SEC  EQU     006H    ;179X-02 SECTOR REGISTOR
 >0007           0041 WD$DTA  EQU     007H    ;179X-02 DATA REGISTER
 >0010           0042 XP$MTO  EQU     010H    ;MOTOR TIME OUT
 >0040           0043 XP$MTX  EQU     040H    ;MOTOR TIME EXTEND
 >0080           0044 XP$DSH  EQU     080H    ;DATA SYNC HOLD
                 0045
                 0046 ;*******************************************************
                 0047 ; 179X-02 COMMAND AND MASK.                             *
                 0048 ;*******************************************************
                 0049
 >0088           0050 DC$RDS  EQU  10001000B  ;READ SECTOR.
 >009C           0051 DM$RER  EQU  10011100B  ;READ ERROR MASK.
                 0052
                 0053 ;*******************************************************
                 0054 ; SYSTEM ASSIGNMENTS                                    *
                 0055 ;*******************************************************
                 0056
 >0014           0057 NMBR$K  EQU     20              ;SYSTEM SIZE IN K.
 >0400           0058 LNG$1K  EQU     1024            ;TOTAL BYTES IN 1K.
 >5000           0059 CPM$SZ  EQU     NMBR$K*LNG$1K   ;TOTAL SYSTEM BYTES.
 >0600           0060 BIOS$S  EQU     LNG$1K*3/2      ;BIOS ALLOCATED SIZE.
 >4A00           0061 BIOS$A  EQU     CPM$SZ-BIOS$S   ;BIOS LOAD ADDRESS.
                 0062
                 0063 ;*******************************************************
                 0064 ; INTERNAL MEMORY ASSIGNMENTS                           *
                 0065 ;*******************************************************
                 0066
 >1000           0067 BANK$0  EQU     1000H           ;LOWER BANK ADDRESS.
 >0400           0068 BANK$L  EQU     0400H           ;1K BANK LENGTH.
 >1400           0069 BANK$1  EQU     BANK$0+BANK$L   ;UPPER BANK ADDRESS.
 >1370           0070 IO$BLK  EQU     BANK$0+0370H    ;I/O BLOCK ADDRESS.
 >1377           0071 CB$STS  EQU     IO$BLK+0007H    ;COMMAND STATUS BYTE.
 >1378           0072 CW$LAD  EQU     IO$BLK+0008H    ;BIOS LOAD ADDR LOC.
 >137A           0073 CW$LNG  EQU     IO$BLK+000AH    ;BIOS LOAD LENGTH LOC.
 >1380           0074 SEC$BF  EQU     BANK$0+0380H    ;SECTOR BUFFER AREA.
                 0075
                 0076 ;*******************************************************
                 0077 ; BIOS PROGRAM LINKAGE.                                 *
                 0078 ;*******************************************************
                 0079
 >0004           0080 SEC$BG  EQU     4               ;FIRST BIOS SECTOR.
 >0008           0081 SEC$NM  EQU     8               ;NUMBER OF SECTORS.
 >000B           0082 SEC$EX  EQU     SEC$BG+SEC$NM-1 ;LAST BIOS SECTOR.
                 0083
                 0084 ;*******************************************************
```

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 ADDR  CODE      STMT SOURCE STATEMENT

               0086 ;*******************************************************
               0087 ; ASSEMBLER DIRECTIVES                                  *
               0088 ;*******************************************************
               0089
               0090         PSECT   ABS             ;ABSOLUTE ADDRESSING.
 >1380         0091         ORG     SEC$BF          ;PROGRAM START POINT.
               0092
               0093 ;*******************************************************
               0094 ; INITIALIZE BIOS READ OPERATION                        *
               0095 ;*******************************************************
               0096
 1380  210004  0097 BEGIN:  LD      HL,LNG$1K       ;BIOS LOAD LENGTH.
 1383  227A13  0098         LD      (CW$LNG),HL     ;LOAD LENGTH SET.
 1386  21004A  0099         LD      HL,BIOS$A       ;BIOS SYSTEM ADDR.
 1389  227813  0100         LD      (CW$LAD),HL     ;LOAD ADDRESS SET.
 138C  210014  0101         LD      HL,BANK$1       ;BIOS LOAD POINT.
               0102
               0103 ;*******************************************************
               0104 ; SET-UP FOR EACH READ SECTOR COMMAND                    *
               0105 ;*******************************************************
               0106
 138F  FD21A813 0107 RD$SEC: LD      IY,RD$TST       ;SET NMI VECTOR.
 1393  3AC413  0108         LD      A,(SECTOR)      ;FIRST BIOS SECTOR.
 1396  A9      0109         XOR     C               ;INVERT (1791-01).
 1397  D306    0110         OUT     (WD$SEC),A      ;SET 179X-02 SEC REG.
 1399  3E88    0111         LD      A,DC$RDS        ;READ SECTOR CMND.
 139B  A9      0112         XOR     C               ;INVERT (1791-01).
 139C  D304    0113         OUT     (WD$CMD),A      ;ISSUE 179X-02 COMMAND.
               0114
               0115 ;*******************************************************
               0116 ; READ SECTOR OPERATION                                 *
               0117 ;*******************************************************
               0118
 139E  DB80    0119 RD$BYT: IN      A,(XP$DSH)      ;WAIT FOR DATA.
 13A0  DB07    0120         IN      A,(WD$DTA)      ;INPUT INV DATA.
 13A2  A9      0121         XOR     C               ;INVERT (1791-01).
 13A3  77      0122         LD      (HL),A          ;STORE DCM BYTE.
 13A4  23      0123         INC     HL              ;INCREMENT POINTER.
 13A5  C39E13  0124         JP      RD$BYT          ;REPEAT OPERATION.
               0125
               0126 ;*******************************************************
```

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 ADDR  CODE      STMT SOURCE STATEMENT

                 0128 ;*******************************************************
                 0129 ; CHECK READ SECTOR STATUS, REPEAT UNTIL BIOS LOADED *
                 0130 ;*******************************************************
                 0131
 13A8  E69C      0132 RD$TST: AND     DM$RER          ;TEST FOR ERRORS.
 13AA  200D      0133         JR      NZ,ERRORS       ;ERROR DETECTED.
 13AC  3AC413    0134         LD      A,(SECTOR)      ;GET SECTOR NMBR.
 13AF  FE0B      0135         CP      SEC$EX          ;CHECK IF LAST SEC.
 13B1  280F      0136         JR      Z,FINISH        ;GO IF FINISHED.
 13B3  3C        0137         INC     A               ;INCREMENT.
 13B4  32C413    0138         LD      (SECTOR),A      ;STORE SECTOR NUMBER.
 13B7  18D6      0139         JR      RD$SEC          ;READ NEXT SECTOR.
                 0140
                 0141 ;*******************************************************
                 0142 ; READ ERROR HAS BEEN DETECTED                         *
                 0143 ;*******************************************************
                 0144
 13B9  327713    0145 ERRORS: LD      (CB$STS),A      ;DISPLAY ERROR STATUS.
 13BC  AF        0146         XOR     A               ;ZERO  A REGISTER.
 13BD  D300      0147         OUT     (BL$CTL),A      ;DESELECT DRIVE.
 13BF  DB10      0148         IN      A,(XP$MTO)      ;MOTOR OFF!
 13C1  76        0149         HALT                    ;TERMINATE.
                 0150
                 0151 ;*******************************************************
                 0152 ; BIOS SECTOR HAVE BEEN LOADED                         *
                 0153 ;*******************************************************
                 0154
 13C2  FB        0155 FINISH: EI                      ;ENABLE INTERRUPTS.
 13C3  76        0156         HALT                    ;SHUTDOWN BOARD.
                 0157
                 0158 ;*******************************************************
                 0159 ; SECTOR NUMBER STORAGE                                *
                 0160 ;*******************************************************
                 0161
 13C4  04        0162 SECTOR: DEFB    SEC$BG          ;SECTOR COUNTER.
                 0163
                 0164 ;*******************************************************
                 0165         END
```

ADDR CODE STMT SOURCE STATEMENT

CROSS REFERENCE LISTING

SYMBOL	VALUE	TYPE	STMT	STATEMENT REFERENCES		
BANK$0	1000		0067	0074	0070	0069
BANK$1	1400		0069	0101		
BANK$L	0400		0068	0069		
BEGIN	1380		0097			
BIOS$A	4A00		0061	0099		
BIOS$S	0600		0060	0061		
BL$CTL	0000		0037	0147		
BL$STS	0000		0036			
CB$STS	1377		0071	0145		
CPM$SZ	5000		0059	0061		
CW$LAD	1378		0072	0100		
CW$LNG	137A		0073	0098		
DC$RDS	0088		0050	0111		
DM$RER	009C		0051	0132		
ERRORS	13B9		0145	0133		
FINISH	13C2		0155	0136		
IO$BLK	1370		0070	0073	0072	0071
LNG$1K	0400		0058	0097	0060	0059
NMBR$K	0014		0057	0059		
RD$BYT	139E		0119	0124		
RD$SEC	138F		0107	0139		
RD$TST	13A8		0132	0107		
SEC$BF	1380		0074	0091		
SEC$BG	0004		0080	0162	0082	
SEC$EX	000B		0082	0135		
SEC$NM	0008		0081	0082		
SECTOR	13C4		0162	0138	0134	0108
WD$CMD	0004		0038	0113		
WD$DTA	0007		0041	0120		
WD$SEC	0006		0040	0110		
WD$STS	0004		0039			
XP$DSH	0080		0044	0119		
XP$MTO	0010		0042	0148		
XP$MTX	0040		0043			

ERRORS=0000